

REMARKS

Claims 1 to 11 are currently pending in the present application. Claim 9 is amended herein. No new matter is added by the amendments.

Claim 9 stands rejected by the Action because the term “CCD” is not spelled out. Claim 9 has been amended to read:

An apparatus as claimed in claim 1, comprising an image acquisition unit in the form of a charge-coupled device camera.

No new matter is added by the amendment as “CCD” is a readily used and understood acronym for “charge-coupled device” in the relevant art area.

Claims 1 to 4, 6, 8 and 9 stand rejected by the Action under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,727,787 to Schlosser et al. (hereinafter “Schlosser”). Applicants respectfully submit that Schlosser does not expressly or inherently disclose all of the elements set forth in independent claim 1. Thus, Schlosser does not anticipate claim 1 or claims 2 to 4, 6, 8 and 9 which depend therefrom.

It is an object of the present invention to provide an apparatus, notably an X-ray apparatus, which comprises improved means for determining the position of components of the apparatus. Accordingly, claim 1 is directed to an apparatus which comprises two components which are displaceable relative to one another, a position visualization unit which is provided on one component of the apparatus, or on a part which is connected thereto, an image acquisition unit which is provided on the other component of the apparatus, or to a part which is connected thereto, in order to acquire images of a segment of the position visualization unit which changes due to a relative motion between the components of the apparatus, and an evaluation unit for extracting position information from the images.

Schlosser is not directed to an X-ray apparatus. Rather, Schlosser is simply directed to apparatus for accurately measuring an elongate steel member so that an operation can be performed on the member at a work station located at a predetermined distance from one end of the member. Accordingly, Schlosser does not contemplate a means for determining the position of the *components of the apparatus* relative to one another, as is the stated object of the subject application.

Specifically, Schlosser fails to disclose an image acquisition unit, which acquires images of a segment of a position visualization unit which changes due to a relative motion between the components of the apparatus, as is clearly claimed in claim 1. That is, even if the measuring tape of Schlosser is equated to the position visualization unit of claim 1, as is suggested by the Action, the measuring tape of Schlosser does not change position due to a relative motion between the components of the apparatus.

According to the invention of claim 1, one component of the apparatus is provided with a position visualization unit whereby the position of this component of the apparatus can be determined relative to the other component of the apparatus. As described in the specification of the subject application at page 1, lines 26 to 28, an image acquisition unit is mounted on the apparatus in such a manner that the *position visualization unit can move through the acquisition zone of the image acquisition device during a relative motion of the two components of the apparatus*. When the image acquisition unit acquires an image, the part of the position visualization unit which is present in the acquisition zone at the instant of acquisition will be represented in said image. This image is applied to an evaluation unit which recognizes the shape of the segment of the position visualization unit represented therein so that it extracts the position information contained therein. The position of the two components of the apparatus can then be determined from the position information thus extracted (page 2, lines 22 to 33).

In contrast, the measuring tape disclosed by Schlosser is a stationary component which does not move through the acquisition zone of the image acquisition device during a relative motion of the two components. Rather, Schlosser simply describes the tape as an elongate measuring tape which is secured to the outside of the outer flange. In operation, a miniature TV camera is mounted on a carriage and the camera is positioned to view the stationary indicia on the stationary measuring tape, such as through an aperture in the carriage.

Moreover, Schlosser fails to disclose an evaluation unit for extracting position information from the images, as is clearly claimed by claim 1. As discussed in the subject application at page 2, lines 27 to 31, the evaluation unit recognizes the shape of the segment of the position visualization unit represented therein so that it extracts the position information contained therein. This is possible, for example, by means of object recognition or text recognition methods which are known from the field of image processing. In contrast, the components of Schlosser cited by the Action (represented by reference numerals 22 and 26) refer simply to a TV camera and a monitor. A means for recognizing the shape of the segment of the position visualization unit represented therein so that it extracts the position information contained therein is not disclosed. Accordingly, for at least these reasons, independent claim 1 is clearly patentable over Schlosser.

Claims 2 to 4, 6, 8 and 9 depend directly or indirectly from claim 1 and provide further features thereto. Accordingly, claims 2 to 4, 6, 8 and 9 are clearly distinguishable over Schlosser for at least the reasons discussed with respect to claim 1.

Applicants respectfully submit that the rejections under 35 U.S.C. § 102(b) of claims 1 to 4, 6, 8 and 9 should be withdrawn and claims 1 to 4, 6, 8 and 9 should be allowed.

Claims 5, 7, 10 and 11 stand rejected by the Action under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 5,048,070 to Maehama et al. (hereinafter “Maehama”) in view of Schlosser.

Schlosser fails to disclose the invention as set forth in claim 1, from which claims 5 and 7 depend, for the reasons discussed above. Specifically, Schlosser fails to disclose an image acquisition unit which changes due to a relative motion between the components of the apparatus and an evaluation unit for extracting position information from the images

Maehama is cited for disclosing an X-ray apparatus having an X-ray source, wherein the X-ray apparatus comprises two components which are displaceable relative to one another and a tape-like carrier. As conceded by the action, Maehama fails to disclose a position visualization unit and an image acquisition unit for acquiring images of a segment of the position visualization unit which changes due to a relative motion between the components of the apparatus, as claimed in claim 1 of the subject application.

Thus, Maehama fails to remedy the deficiencies of Schlosser. Since the combination of Maehama and Schlosser does not disclose or suggest all the limitations of claim 1, it does not render obvious claim 1. Since claims 5 and 7 depend from claim 1 and add further features thereto, the cited combination does not render obvious claims 5 and 7 for at least the reasons discussed. Accordingly, the rejections under 35 U.S.C. § 103(a) of claims 5 and 7 should be withdrawn and claims 5 and 7 should be allowed.

Claim 10 is directed to an X-ray apparatus which comprises two components which are displaceable relative to one another, a position visualization unit which is provided on one component of the apparatus, or on a part which is connected thereto, an image acquisition unit which is provided on the second component of the apparatus, or on a part which is connected thereto, in order to acquire images of a segment of the position

visualization unit which changes due to the motion, and an evaluation unit for extracting position information from the images.

As discussed with respect to claim 1, both Maehama and Schlosser fail to disclose a position visualization unit and an image acquisition unit for acquiring images of a segment of the position visualization unit which changes due to a relative motion between the components of the apparatus. Thus, claim 10 is distinguishable over the cited combination of Maehama and Schlosser for at least the reasons discussed with respect to claim 1. Claim 11 depends from claim 10 and provides further distinguishing features thereto and is, therefore, patentable over Maehama and Schlosser for at least the reasons discussed.

Accordingly, the rejections under 35 U.S.C. § 103(a) of claims 10 and 11 should be withdrawn and claims 10 and 11 should be allowed.

Conclusion

In view of the foregoing, Applicants respectfully submit that the specification, the drawings and all claims presented in this application are currently in condition for allowance. Accordingly, Applicants respectfully request favorable consideration and that this application be passed to allowance.


Should any changes to the claims and/or specification be deemed necessary to place the application in condition for allowance, the Examiner is respectfully requested to contact the undersigned to discuss the same.

Applicants' representative believes that this response is being filed in a timely manner. In the event that any extension and/or fee is required for the entry of this amendment the Commissioner is hereby authorized to charge said fee to Deposit Account No. 14-1270. An early and favorable action on the merits is earnestly solicited.

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If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call David Barnes, Esq., Intellectual Property Counsel, Philips North America Corporation at the number below.

Respectfully submitted,

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